REMARKS

The present amendment is in response to the Office Action, dated March 20, 2003, where the Examiner has rejected claims 17-21, 27-31, 37-41 and 61-95. By the present amendment, claim 29 has been canceled, and claims 17, 20, 21, 27, 30, 37, 41, 71, 79, 83 and 86 have been amended. After the present amendment, claims 17-21, 27-28, 30-31, 37-41 and 61-95 are pending in the application. Reconsideration and allowance of pending claims in view of the amendments and the following remarks are respectfully requested.

A.   Objection to the Specification

The Examiner has objected to the abstract for including the word "disclosed". By the present amendment, applicants have amended the abstract to replace the word "disclosed" with the word --provided--. Applicants respectfully submit that the Examiner's objection has been overcome.

B.   Rejection of Claims 71-82 and 86 under 35 U.S.C. § 112, ¶ 1

The Examiner has rejected claims 71-82 and 86 under 35 U.S.C. § 112, ¶ 1, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicants have amended claim 71 to recite in part: "wherein said data line is time division multiplexed so that either a single bit of said DSL data or a single bit of said DSL operational and/or control information is transferred between the DSL digital circuit section and

the DSL analog circuit section over said data line during a single bit clock signal period." Applicants respectfully submit that the Examiner's rejection has been overcome, because according to the specification, e.g. pages 15-18, "a single bit of said DSL data or a single bit of said DSL operational and/or control information is transferred ... during a single bit clock signal period."

Further, applicants have amended claim 86 to recite: "The system of claim 83 wherein all bandwidth in said parallel transmit signal lines can be allocated to a single active channel." Applicants respectfully submit that, for example, the support for claim 86, as amended, can be found at page 18, lines 2-4 of the specification, which reads: "the present invention allows a DSL modem to be configured with a value of M=8, thus setting up only one active channel in the upstream direction and 8 active channels in the downstream direction", page 18, lines 2-4." Accordingly, applicants respectfully submit that the Examiner's rejection has been overcome.

C.   Rejection of Claims 41, 79 and 86 under 35 U.S.C. § 112, ¶ 2

The Examiner has rejected claims 41, 79 and 86 under 35 U.S.C. § 112, ¶ 2. Applicants respectfully submit that claim 41 has been amended to replace "the xDSL capable modem" with the --the xDSL compatible modem--, claim 79 has been amended to depend from claim 78, and claim 86 has been amended to replace "said bandwidth" with --bandwidth--. Accordingly, applicants respectfully submit that the Examiner's rejection has been overcome.

D. **Rejection of Claims 37-41 and 61-66 under the Judicially Created Doctrine of Obviousness-Type Double Patenting**

The Examiner has rejected claims 37-41 and 61-66 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 37-41 and 61-66 of U.S. Patent No. 6,345,072, respectively.

Along with the present amendment, applicants have submitted a terminal disclaimer to overcome the Examiner's rejection under the judicially created doctrine of obviousness-type double patenting with respect to claims 37-41 and 61-66 of U.S. Patent No. 6,345,072. Applicants respectfully submit that the enclosed terminal disclaimer overcomes the Examiner's rejection and places claims 37-41 and 61-66 in a condition for allowance.

E. **Rejection of Claims 17-21, 27-30, 67-73, 78-85 and 87-95 under 35 U.S.C. § 103(a)**

The Examiner has rejected claims 17-21, 27-30, 67-73, 78-85 and 87-95 under 35 U.S.C. § 103(a) as being unpatentable over Bingham et al. (USPN 5,680,394) (hereinafter "Bingham"). Applicants respectfully disagree.

In order to expedite the prosecution of claim 17, applicants have amended claim 17 to recite in part: "communicating the data and operational and/or control information, embedded in a plurality of words, between the digital controller and analog codec at a rate corresponding to said bit clock, wherein each of the plurality of words includes a portion of the data and a portion of the operational and/or control information, and wherein said operational and/or control information embedded in each of said plurality of words is transmitted over a data line during a

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first time period corresponding to a first number of bit clock periods, and the data embedded in each of said plurality of words is transmitted over said data line during a second time corresponding to a second number of bit block periods."

The Examiner rejects claim 17 by stating that the digital controller and the analog codec of claim 17 are "broadly interpreted" to be receiving/transmitting xDSL data as in the central unit of Bingham and the remote units of Bingham. Applicants respectfully submit that the Examiner's "broad interoperation" is unfounded and ignores the limitations of claim 17. First, each of the central unit and the remote units of Bingham is a standalone DSL modem, whereas neither the digital controller of claim 17 nor the analog codec of claim 17, by itself, can be said to be a DSL modem. In fact, only the combination of the digital controller of claim 17 and the analog codec of claim 17 forms a DSL modem. Bingham fails to disclose, teach or suggest a method of transmitting data for use within either the central unit or the remote units. Second, the Examiner's "broad interpretation" ignores the words "digital" and "analog". The Examiner should note that the data communication between the digital controller of claim 17 and the analog codec of claim 17 is performed via an xDSL "digital" communication link. Whereas the communication between the central unit and remote units of Bingham is performed via PSTN telephone lines in modulated analog form. Accordingly, the Examiner's "broad interpretation" ignores key limitations of claim 17.

Third, by the present amendment, applicants have amended claim 17 and respectfully submit that Bingham fails to disclose, teach or suggest "communicating the data and operational and/or control information, embedded in a plurality of words, between the digital controller and analog codec at a rate corresponding to the bit clock, wherein each of the plurality of words

includes a portion of the data and a portion of the operational and/or control information". The support for the above amendment, for example, is found on page 15 and FIG. 3B.

Accordingly, applicants respectfully submit that claim 17 and its dependent claims 18-21 and 67-70 should be allowed.

Further, applicants respectfully submit that claim 27 should be allowed at least for reasons similar to the first and second reasons stated above in conjunction with patentability of claim 17. In addition, claim 27 has been amended to recite: "wherein operational and/or control information for each of said plurality of separate communications circuits is embedded in data words communicated through each of their respective communications channels." Bingham fails to show that operational and/or control information for each of said plurality of separate communications circuits is embedded in data words.

Accordingly, applicants respectfully submit that claim 27 and its dependent claims 28 and 30-31 should be allowed.

Moreover, applicants respectfully submit that claim 71 should be allowed at least for reasons similar to the first and second reasons stated above in conjunction with patentability of claim 17. In addition, Bingham fails to disclose, teach or suggest "said data line is time division multiplexed so that either a single bit of said DSL data or a single bit of said DSL operational and/or control information is transferred between the DSL digital circuit section and the DSL analog circuit section over said data line during a single bit clock signal period", as recited in claim 71, as amended.

Accordingly, applicants respectfully submit that claim 71 and its dependent claims 72-82 should be allowed.

Also, applicants respectfully submit that claim 83 should be allowed at least for reasons similar to the first and second reasons stated above in conjunction with patentability of claim 17. In addition, Bingham fails to disclose, teach or suggest "wherein the data and operational and/or control information are embedded in a plurality of words, such that each of the plurality of words includes a portion of the data and a portion of the operational and/or control information", as recited in claim 83, as amended.

Accordingly, applicants respectfully submit that claim 83 and its dependent claims 84-89 should be allowed.

Further, applicants respectfully submit that claim 90 should be allowed at least for reasons similar to the first and second reasons stated above in conjunction with patentability of claim 17. In addition, Bingham fails to disclose, teach or suggest "generating a separate frame signal within said computer system bus for indicating a boundary for a data frame carrying channel data for the plurality of respective data channels; communicating said channel data within said computer system bus between the digital controller and the plurality of analog CODECs based on said bit clock and said separate frame signal using time division multiplexing, such that channel data words for each of the plurality of respective data channels are clocked at different respective portions of said data frame", as recited in claim 90.

Accordingly, applicants respectfully submit that claim 90 and its dependent claims 91-95 should be allowed.

F.   Conclusion

For all the foregoing reasons, an early allowance of claims 17-21, 27-28, 30-31, 37-41

and 61-95 pending in the present application is respectfully requested. Moreover, applicants

direct the Examiner's attention to the Revocation and Power of Attorney, filed concurrently (a

copy of which is hereby enclosed), which conveys power of attorney to the undersigned

attorneys. Accordingly, applicants respectfully request that all subsequent communications be
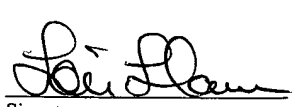
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The Examiner is invited to contact the undersigned for any questions.

> Respectfully Submitted;
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> 10/13/03
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